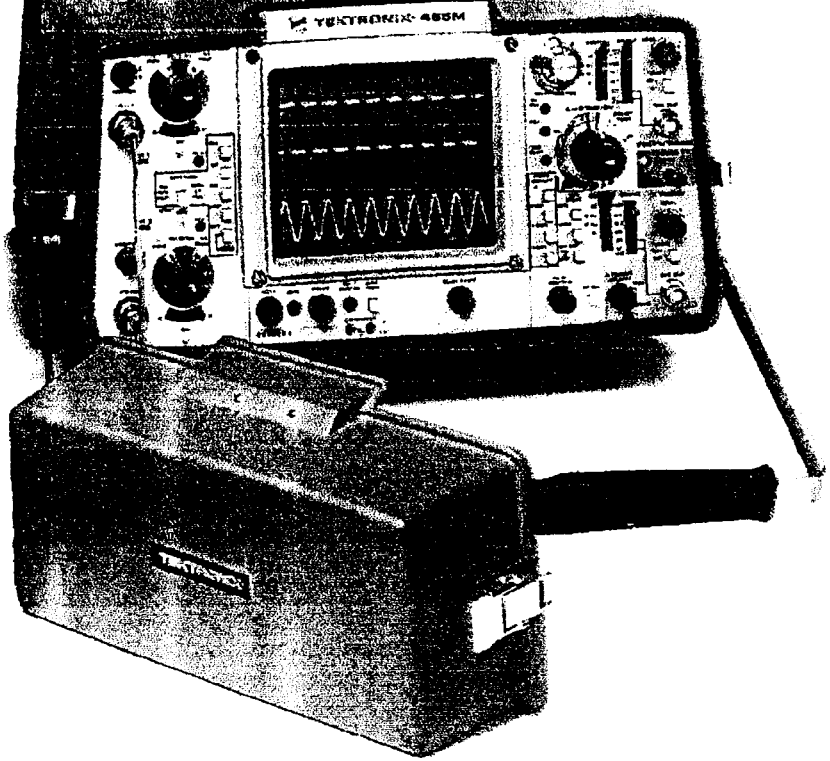

465M or AN/USM-425 (v)1

Fully Provisioned Through the Federal Supply System

Meets MIL-T-28800, Type II, Class 4, Style C for the Environmental Conditions Listed

100 MHz at 5 mV/div, Dual Trace, Delayed Sweep

Accepted and Specified by All Branches of the Military and by Several Civil Agencies

If you're a contractor involved in designing and specifying systems for the government, here's a 100 MHz oscilloscope that should top your recommended support equipment list—the Tektronix 465M Portable Oscilloscope.

The Tektronix 465M is the AN/USM-425 (v) 1 tri-service standard 100 MHz portable oscilloscope. The instrument is accepted, fully provisioned, and supported throughout the Federal Supply System. Because the MIL manuals and support documentation are already complete, your required paper work is greatly reduced and it's much simpler for the government to accept your recommendations.

You can now order the 465M directly from your Tektronix Sales Engineer with the AN/USM-425 (v) 1 nomenclature by simply specifying Option 49. This assures the fastest possible delivery of your AN/USM-425 (v) 1.

– 55°C. For ac coupling the low
with a 1X probe and 1 Hz or les

Bandwidth Limit Mode — Band

Deflection Factor — 5 mV/div
sequence). Dc Accuracy: ±2% (
to 0°C, +40°C to +55°C. Unca
between settings, and to at leas

Common-Mode Rejection Rat
from 10 MHz to 50 MHz, 6 cm s
inverted.)

Display Modes — CH 1, CH 2 (
chopped (250 kHz rate), added,

Input R and C — 1 MΩ ±2%,

Maximum Input Voltage — D
— peak ac at 50 kHz, derated a

Cascaded Operation — (CH 2
to at least 40 MHz. Sensitivity:
50 Ω at CH 1 input with both CH
to 5 mV/div.

HORIZONTAL

Time Base A — 0.5 s/div to 0.1
quence). X10 magnifier extends

Time Base B — 50 ms/div to
sequence). X10 magnifier ext
5 ns/div.

	Unma
–20°C to +30°C	±
–15°C to +55°C	±

Mixed Sweep Accuracy — A P

Horizontal Display Modes — A
by A, and mixed.

CALIBRATED S

Calibrated Delay Time — Cont
5 s after the start of the delaying

Differential Time Measuremen
ments of Two or More Major Dia
– 0.1% of full scale. 0°C to +5

Jitter — One part or less in 20,0
/Div switch setting.

TRIGG

A Trigger Modes — Normal Sw
vertical amplifier signal, external
signal. A bright baseline is provid
signal. Automatic: A bright basel
of input signals. Triggering is the
40 Hz. Single (main time base o
with the same triggering as norm
sweep and illuminate the reset
activates when the next trigger i

A Trigger Holdoff — Increases
least X10 the Time/Div settings,

Triggering Sensitivity and Coup

Coupling	From 30 Hz
Dc Internal	0.3 c
Dc External	50 m
Ac	Attenuates sig
Ac LF Reject	Attenuates sig
Ac HF Reject	Attenuates sig

Trigger View — View external and internal trigger signals; Ext 1x, 100 mV/division, Ext +10, 1 V/division.

Level and Slope — Internal, permits triggering at any point on the positive or negative slopes of the displayed waveform. External, permits continuously variable triggering on any level between +1.0 V and −1.0 V on either slope of the trigger signal.

A Sources — CH 1, CH 2, Normal (all display modes triggered by the combined waveforms from CH 1 and 2), Line, Ext, Ext ÷10.

B Sources — B starts after delay time; CH 1, CH 2, Normal, Ext, Ext ÷10.

X-Y OPERATION

Sensitivity — 5 mV/division to 5 V/division in 10 steps (1-2-5 sequence) through the vertical system. Continuously variable between steps and to at least 12.5 V/division.

X-Axis Bandwidth — Dc to at least 4 MHz.

Y-Axis Bandwidth — Dc to 100 MHz.

X-Y Phase — <3° from dc to 50 kHz.

SIGNAL OUTPUTS

A Gate — ≈5.0 V positive-going pulse.

B Gate — ≈5.0 V positive.

DISPLAY

CRT — 5 inch rectangular tube; 8 x 10 cm display; GH (P31) Phosphor is standard.

Graticule — Internal, nonparallax; illuminated. 8 x 10 cm markings with horizontal and vertical center lines further marked in 0.2 cm increments. 10% and 90% markings for rise-time measurements.

Graticule Illumination — Provides variable illumination from 0 to greater than optimum illumination.

Beam Finder — Limits the display to within the graticule area and provides a visible display when pushed.

Z-Axis Input — A female BNC connector is provided to permit intensity modulation over the dc to 15 MHz range. At optimum intensity, intensity modulation is accomplished with a Z-axis input of from −5 V (to intensify) to +5 V (to blank). Continuous operation maximum input shall be ±50 V (dc + peak ac).

ENVIRONMENTAL CHARACTERISTICS

EMC — Complies with the following limits as specified in MIL-T-28800B. CE01 (10 kHz to 20 kHz only), CE03, CS01, CS02, CS06, RE01 (relaxed 10 dB at fundamental, third harmonic, and fifth harmonic of the power source frequency) RE02 (limited to 7 GHz), RS01 and RS03 (limited to 1 GHz).

Ambient Temperature — Operating: −15°C to +55°C. Nonoperating: −62°C to +85°C.

Altitude — Operating: To 4600 m (15,000 ft). Maximum operating temperature decreased 1°C/1,000 ft 5,000 to 15,000 ft. Nonoperating: To 15 000 m (50,000 ft).

Vibration — Operating (Along Each of the Three Major Axes): Cycling 5 Hz to 25 Hz to 5 Hz for 10 minutes at 0.025 in p-p; Cycling 25 Hz to 55 Hz to 25 Hz for 5 minutes at 0.020 in p-p; Dwelled at 55 Hz for 10 minutes at 0.020 in p-p. Total Vibration Time: 75 minutes.

Humidity — Operating and Nonoperating: 5 cycles (120 hours) referenced to MIL-E-16400F.

Shock — Operating: 30 g's, ½ sine, 11 ms duration, 3 shocks each direction per axis for a total of 18 shocks.

OTHER CHARACTERISTICS

Calibrator Output Voltage — 1.0 V ±1.0% to −15°C to +55°C. Frequency: ≈1 kHz.

Channel 2 Signal Output — Through main module CH 2 Out connector. Output Voltage: ≈50 mV/division into 1 MΩ, ≈25 mV/division into 50 Ω. Output Resistance: ≈50 Ω. Bandwidth: Dc to at least 40 MHz into 50 Ω.

Power Requirements — 100 V to 132 V RMS, 200 V to 264 V RMS, 48 Hz to 440 Hz. Maximum power consumption 60 W at 115 V, 60 Hz.

Dimensions	mm	in
Width (with handle)	347	13.6
Width (without handle)	317	12.5
Height (with feet)	179	7.0
Depth (including panel cover)	546	21.5
Depth (handle extended)	611	24.1
Weight ≈	**kg**	**lb**
Net (w/o cover and accessories)	10.9	24.0
Net (with panel cover, modules, and accessories)	12.2	27.0
Shipping	15.5	34.2

Transportation — Meets the limits of National Safe Transit Committee test procedure 1A with a 30 inch drop.

INCLUDED ACCESSORIES

Two P6104 10X probes (010-6104-00); accessory and cover assembly (200-2055-01); P6101 1X probe (010-6101-00); three pincer tips (013-0107-03); T connector (103-0030-00); two UHF male to BNC female adaptors (103-0015-00); two BNC male to UHF female adaptors (103-0032-00); BNC male to dual binding post adaptor (103-0035-00); three banana tips (134-0013-00); three probe tip adaptors (103-0051-01); three 6 inch leads with spring clips (175-0124-01); blue filter (337-2122-00); three hooked probe tips (206-0105-00); clear filter (337-2122-01); power cord (161-0118-00); three miniature alligator clips (344-0046-00); service manual; operator's manual.

ORDERING INFORMATION

465M Portable Oscilloscope **$4,010**

Option 49 — AN/USM-425 (v) 1 ..... NC

INTERNATIONAL POWER CORDS AND PLUG OPTIONS

Option A1 — Universal Euro 220 V/16 A, 50 Hz

Option A2 — UK 240 V/13 A, 50 Hz

Option A3 — Australian 240 V/10 A, 50 Hz

Option A4 — North American 240 V/15 A, 60 Hz

OPTIONAL ACCESSORIES

P6022 Current Probe — 9 ft cable with termination.
Order 015-0135-01 ..... $380

Folding Polarized Viewing Hood — Order 016-0180-00 $40

Mesh Filter — Improves contrast and EMC filtering.
Order 378-0726-01 ..... $55

SCOPE-MOBILE® Cart — Occupies <18 inch of aisle space.
Order 200D or 200C $320

Rack Adaptor (Cradle Mount) Kit — Rack height 7 in, depth 18.75 in, width 19 in. Order 040-0825-01 ..... $350

RECOMMENDED CAMERA

C-30BP Option 01 General Purpose Camera — Includes 016-0301-01 mounting adaptor/corrector lens.
Order C-30BP Option 01 Camera $1,417

For further information see camera section.

1105 BATTE

The 1105 is a rugged, p
powering virtually any port
1105 is not recommended

Frequency — Squarewav

Amplitude — ≈108 V pea
or 22 V internal charge. ≈
dc external or 30 V internal

Amplitude (Option 01) —
nal or 22 V internal charge.
dc external or 26 V internal

Charging Power Source
440 Hz (or internal conne
−200 V ac to 264 V ac, 48
tions expand range).

Battery Operating Time —

Recommended Maximum

Weight — 8.8 kg (19.5 lb).

ORDERING

Order 1105 Battery

Option 01 — 230 V Operat

To order, call your local Te
National Marketing Center,
In Oregon call collect: (503

Tektronix offers service tr
oscilloscopes. For further